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LEARNING DEXTERITY: A TECHNO PSYCHO SOCIAL CONSTRUCT FOR MEASURING THE POTENTIAL

Nopriadi Saputra[1], Sasmoko[2]

[1]Binus Business School, Universitas Bina Nusantara, Indonesia
[2]Research Interest Group in Education Technology, Universitas Bina Nusantara, Indonesia

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Learning dexterity: A techno psycho social construct for measuring the potential (Article)

Saputra, N.[a], Sasmoko[b]

[a]Binus Business School, Universitas Bina Nusantara, Indonesia
[b]Research Interest Group in Education Technology, Universitas Bina Nusantara, Indonesia

Abstract

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Technological developments have impacted on increasingly dynamic and unpredictable business environments. It demands companies to develop dynamic capabilities and talent management become strategic. The process of identifying potential in talent management has been using learning agility. Learning agility does not accommodate the technological aspect in predicting the individual potential. This study proposes learning dexterity which accommodates technological and psycho-social aspects. The concept of learning dexterity has been empirically tested on 477 managerial resources of the Indonesian palm oil industry. The results concluded that learning dexterity in the second-order construct was a good construct for measuring individual potential.

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Nopriadi Saputra[1], Sasmoko[2]

[1]Faculty member, Binus Business School; [2]Professor, Research Interest Group in Education Technology, Universitas Bina Nusantara

ABSTRACT

Technological developments have impacted on increasingly dynamic and unpredictable business environments. It demands companies to develop dynamic capabilities and talent management become strategic. The process of identifying potential in talent management has been using learning agility. Learning agility does not accommodate the technological aspect in predicting the individual potential. This study proposes learning dexterity which accommodates technological and psycho-social aspects. The concept of learning dexterity has been empirically tested on 477 managerial resources of the Indonesian palm oil industry. The results concluded that learning dexterity in the second-order construct was a good construct for measuring individual potential.

***Keywords**: learning agility, digital mastery, learning dexterity*

INTRODUCTION

Associated with the Industry 4.0 phenomenon, the development of digital technology brings the company and people into VUCA world - a world with full of vulnerability, uncertainty, complexity and diversity [1,2]. The business environment has developed to be very dynamic and even difficult to predict. The changes that occur are not only episodic, but also continuous and even disruptive changes[3].The dynamics of the business environment demands every company to pay serious attention on organizational adaptability [4]. Dynamic capability is the organizational capability to adapt effectively in dealing with the changes [5]. By having sufficient dynamic capability, the company can be more flexible in dealing with episodic changes, more agile in facing continuous change, and more resilient in experiencing disruptive change [3].

The dynamic capability is determined by the company's capability in managing people [6]. Work-force is all people who work for the company to achieve goals. Among the existing work forces, there are people who contribute not only as physical labor; but also contributes their thoughts, skills, reputation, and networks to support the company to achieve business goals. Such people are called human resources. Among the existing human resources, there are people who are able to generate revenue or save expenses for companies that are far greater than the costs incurred; these people are categorized as human capital. Among human capital, there are people whose existence in the company impact directly on sustained competitive advantage [7], such people are categorized as the talent. Dynamic capability is strongly influenced by the company's capability in managing people not only as a workforce and human resource, but at least as human capital or even as a talent for the company.

The company's capability to manage talent is a strategic resource that plays an important role in achieving sustainable competitive advantage [7]. The capability in managing talent stands on three main processes: identifying, utilizing, and retaining talent. In identifying talents, management scholars and practitioners generally use two dimensions: high performance and high potential [8]. The talent is defined as a group of people who are consistently aim performance far beyond others (high performance) and also remain high-performing despite facing new or changing environment (high potential).

For identifying individual potential, the management scholars and practitioners use learning agility [9,10,11]. Agility learning reflects the ability of individuals to utilize experiences as a mean for effective learning to deal with change [12,13,14]. Some constructs which

have conceptual similarity with learning agility are: integrative complexity, motivation to learn, cognitive flexibility, learning effectiveness, street smart, or adaptive performance. All of these concepts are psycho-social constructs. The concept only considers the ability to manage one's psychological self and influence the social environment when dealing with change. Because the changes are triggered by the development of digital technology [1,2], it is important to consider the individual ability to master digital technology. Therefore this study proposes to modify learning agility into a techno-psycho-social construct. By combining the concepts of digital mastery and learning agility so that it becomes a concept of learning dexterity.

The concept of learning dexterity is tested against managerial resources in the Indonesian palm oil industry. A fast-growing industry [15], contributes greatly in providing vegetable oils for the world and also as one of the economic pillars of national development [16]. The Indonesian palm oil industry is facing natural, social, and managerial challenges [17,18]. Oil palm plantation companies need to develop dynamic capability through managing the managerial resources as the talent for achieving sustainable growth. This study aims to propose and test construct of learning dexterity empirically both in second-order and third-order construct.

LITERATURE REVIEW

Learning Agility: Learning agility is a construct that attracts the attention from management scholar and practitioners and requires further study to get conceptual clarity [19]. Learning agility is believed to be valid to predict current performance, future potential and also the ability to adapt to dynamic and full of change environments [12,13,14]. Learning agility is based on the ability to gain relevant insight from the experience and utilized those insight into newly and more difficult contexts[20].

Most of management scholars defined learning agility as the ability or competence in dealing with the changes. Learning agility is defined as (1) desire and ability to learn from experience and apply the learning outcomes so that they can still perform optimally on new situations or situations that were first experienced [21], (2) as the ability to quickly understand the situation that is happening and then think flexibly through the learning process, both from one's own experiences and those of others [22]; (3) as the ability to interpret situations or experiences faced and the ability to take lessons from these experiences [23]; and (4) as meta-competency that explains one's adaptive capacity in the face of ambiguity or ambiguity in a situation by utilizing skills, habits and learning abilities [11].

Several instruments which are often used for measuring learning agility are Choices Questionnaire, Learning Agility Assessment, viaEDGE, Learning Agility Assessment Inventory and TalentX7. Choices Questionnaire [21] and Learning Agility Assessment [10] measure learning agility using four dimensions - people agility, results agility, mental agility, and change agility. viaEDGE [24] measures learning agility using five dimensions - people agility, results agility, mental agility, change agility and self-awareness. Learning Agility Assessment Inventory measures learning agility using five dimensions - innovate, perform, reflect, take risk, and defend [11]. Meanwhile TalentX7 uses seven dimensions - self insight, connective perspective, interpersonal acumen, change alacrity, drive to excel, environmental mindfulness and feedback responsiveness[11].

Based on explanation of the scholars above, learning agility in this study is defined as the ability of individuals to be flexible and fast in utilizing experience to deal with complex and newly situations. Learning agility is reflected into four dimensions (1) mental agility is the willingness to always make difficulties, failure and mistakes a mean for learning; (2) change agility is enthusiasm in utilizing changes that occur as a mean for learning. (3) result agility is the ability to focus on achievement even though it is in a rumored condition, without clear direction and a long process, (4) people agility is the ability to learn from other people's experiences and collaborate with others in achieving superior performance.

Digital Mastery: The term of digital mastery comes from the digital master [25]. In a book entitled *Leading digital: Turning technology into business transformation*, digital maturity level of the company can be categorized into one of four categories: *digirati*, *fashionistas*, *conservatives* and *beginner*. Then the term of *digirati* was replaced with digital master[25]. This term is used to name the companies which has successfully transformed and then excelled after investing in digital technology. Based on global empirical research, the success of the digital master lies on the digital capability and leadership capabilities [26].

The term of digital master [25] is used to indicate organizational ability. But the digital mastery used in this paper is similar with the concept of personal mastery in the *Fifth Discipline* [27] which is used to explain individual ability. The concept of digital mastery refers to socio-technical theory [28], human-computer interaction [29], and digital skills [30].

Socio-technical theory [28] explains the interaction between social aspects (society, relations, structure) and technological aspects (devices, processes, materials) along with environmental influences on both aspects. The optimal performance can be achieved if the interdependence and complex interactions between social and technical aspects are considered together [31]. Meanwhile, human-computer interaction [29] explains that human and computer interactions involve cognitive, informational and valued physical resources. Therefore, it is necessary to have the ability for utilizing computers to benefit the human optimally [29,30] developed the concept of digital skills which explained the ability to use the internet for the benefit of economic development or the fulfillment of personal needs.

Digital mastery as an individual's ability to utilize digital technology has conceptual similarity with several concepts such as: digital skills, digital competence, ICT / digital literacy, internet skills, digital intelligence or digital master. Based on systematic literature review of 75 articles relating to what skills individuals need to excel in the 21st century [32]; digital skills defined into 12 skills which grouped in four skills groups; (1) digital technical, (2) digital self-development, (3) social digital, and (4) digital solution. Meanwhile the other scholar [30] grouped six digital skills into two main categories, namely medium-related skills and content-related skills.

Based on the literature review above, digital mastery in this study is defined as awareness, attitudes, and individual skills in utilizing digital technology for the purposes of coordination, self-development, and business operations; thus helping companies become more effective. Digital mastery is reflected into three dimension: (1) digital communication skills - which indicates the ability to communicate digitally through the internet; (2) content creation skill – which describes the skills to design and create digital content that is appropriate, effective and interesting; (3) digital strategic skills which explains skill to gain as much benefit as possible from digital technology for personal development and personal future.

Learning Dexterity: Learning dexterity is a techno-psycho-social concept of agility learning by combining the concepts of digital mastery and learning agility. The dexterity term refers to ambidexterity. Some scholars [33, 34] emphasize that ambidexterity is the adaptive ability of an organization to carry out two different and contradictory learning functions. Those are the exploration and the exploitation function. The exploitation function is related to continuous improvement, efficiency, selection, and implementation. While the exploration function is related to research, variation, experimentation, and new discoveries [35].

In line with the ambidexterity, learning dexterity also reflects a combination of two different and contradictory things. Those are the ability to managing self and relationship with the others (psycho-social, non-technical aspects) and the ability to utilize technology (technological, technical aspects). The learning dexterity is also in line with socio-technical theory [28] which explains that there are interactions between social aspects (society, relations, structures) and technological aspects (devices, processes, materials) of individual behavior, especially how individuals perceive and do work, play a role in the organization, and interact each others. The optimal performance can be achieved if the interdependence between social and technical aspects are considered together [31].

Based on the definition of learning agility and digital mastery, learning dexterity is defined as the individual's ability to utilize digital experience and technology in producing superior performance in a changing environment. Learning dexterity is reflected into two dimensions: learning agility and digital mastery.

RESEARCH METHODOLOGY

Sample: The population of this study is managerial resources who supervising and managing effectiveness and efficiency of palm oil plantation operation. They are agronomy supervisors or managers in private companies in palm oil plantation. The size of population was estimated by 15,907 operational supervisor or managers. Based on the estimated population size, the expected sample size is 376 [36]. Most of Indonesia's palm oil plantations (95.8%) are located in Sumatra and Borneo. The sample of this study is divided into two clusters - Sumatra and Borneo. The sample was stratified proportionally based on the clusters. The data

was collected randomly and based on the list of GAPKI members. This study has collected successfully data from 491 respondents, but 14 respondents did not give correct and complete responses. Finally the analysis of this study based on 477 respondents. The profile of respondents is dominated by men (85%) and born between 1980 to 1999 (79%). They have working experience in palm oil plantation less five years (51%) and bachelor degree as educational background (71%). They come from non-farming family (80%) and now have position as team leader or supervisor (60%).

Measurement & Procedure: This study conducted confirmatory factor analysis by using SmartPLS version 3.0 for analyzing the second-order and the third-order construct of learning dexterity. In the second-order construct, learning dexterity is reflected into learning agility and digital mastery dimension. Learning agility is reflected into twelve items. Digital mastery is reflected into nine items. In the third-order construct, learning dexterity is reflected into learning agility and digital mastery dimension. Learning agility is reflected into sub-dimensions such as: (1) change agility; (2) mental agility; (3) people agility; and (4) result agility.

RESULTS AND DISCUSSIONS

Second-Order Construct: The second-order construct is illustrated in Figure 1 and the result of validity and reliability analysis of the second-order construct is listed in Table 1. Validity is indicated by average variance extracted (AVE) and reliability of construct is indicated by Cronbach's alpha (CA) and composite reliability (CR). Digital mastery has Cronbach's alpha (0.768) and composite reliability (0.828) more than 0.708. Digital mastery dimension is reliable. Learning agility has Cronbach's alpha (0.866) and composite reliability (0.91) more than 0.708. Digital mastery dimension is reliable too. Average variance extracted of digital mastery (0.351) and learning agility (0.408) less than 0.5. Digital mastery and learning agility are not valid. Based on result of validity and reliability, second-order construct is reliable but not valid.

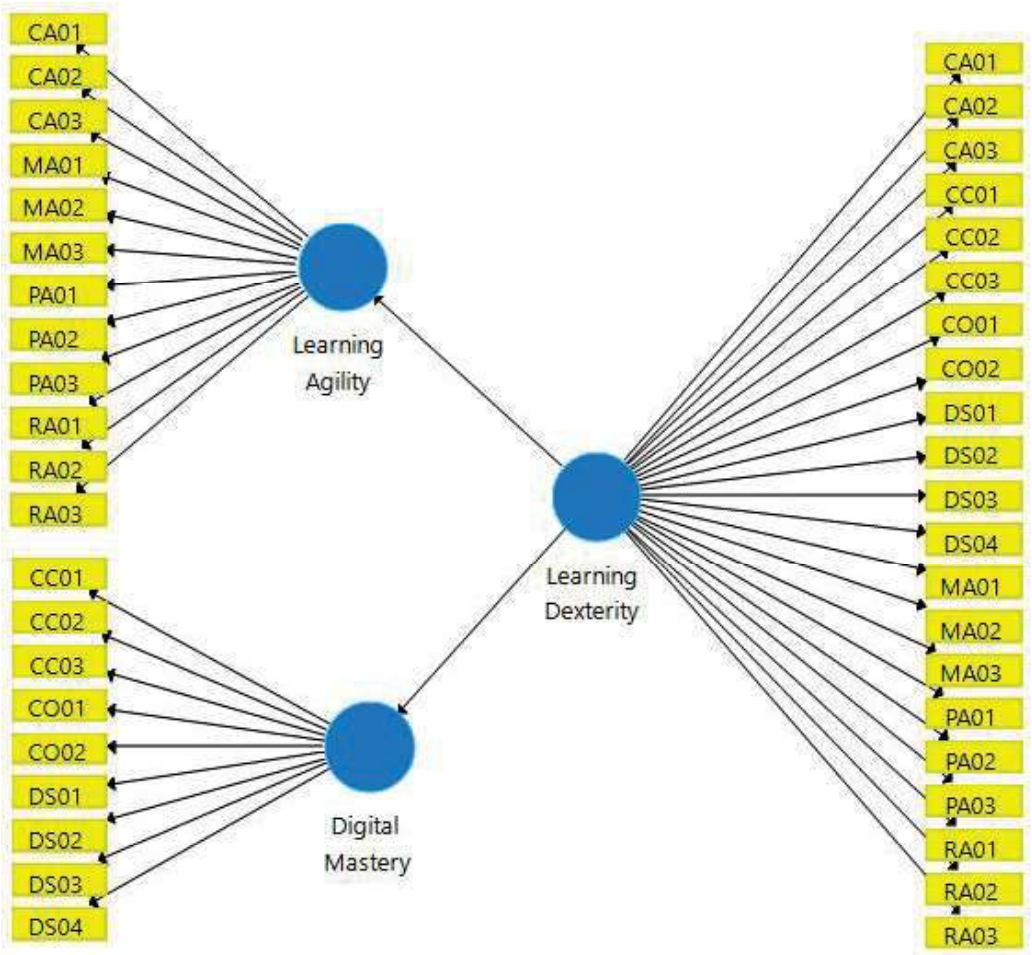

Figure 1: Second-Order Construct

Table 1: Validity & Reliability Analysis of Second-Order Construct

Variable / Dimension	Reliability			Validity	
	CA	CR	Conclusion	AVE	Conclusion
Digital Mastery	0.768	0.828	Reliable	0.351	Not Valid
Learning Agility	0.866	0.891	Reliable	0.408	Not Valid

CA = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted

Third-Order Construct: The third-order construct is illustrated in Figure 2 and the result of validity and reliability analysis of the third-order construct is listed in Table 2. Although Cronbach's alpha of digital communication skills (0.64) is lower than 0.708; but composite reliability of all sub-dimension of digital mastery–such as content creation skill, digital communication skill, and digital strategic skill–are higher than 0.768; it means that all sub-dimensions of digital mastery are reliable. It is similar to learning agility dimension. Although Cronbach's alpha of change agility (0.68); people agility (0.69) and result agility (0.53) are lower than 0.708; but composite reliability of all sub-dimensions–change agility, mental agility, people agility and result agility are higher than 0.708. It means that all sub-dimensions of learning agility are reliable. Average variance extracted of all sub-dimensions of digital mastery and learning agility range from 0.64 to 0.78. Those scores are more than 0.5. It means that all sub-dimensions of digital mastery and learning agility are valid. The third-order construct is valid and reliable. Comparing the both construct; the third-order construct is better because the construct is valid and reliable. Therefore the third-order construct is chosen as the proposed learning dexterity construct.

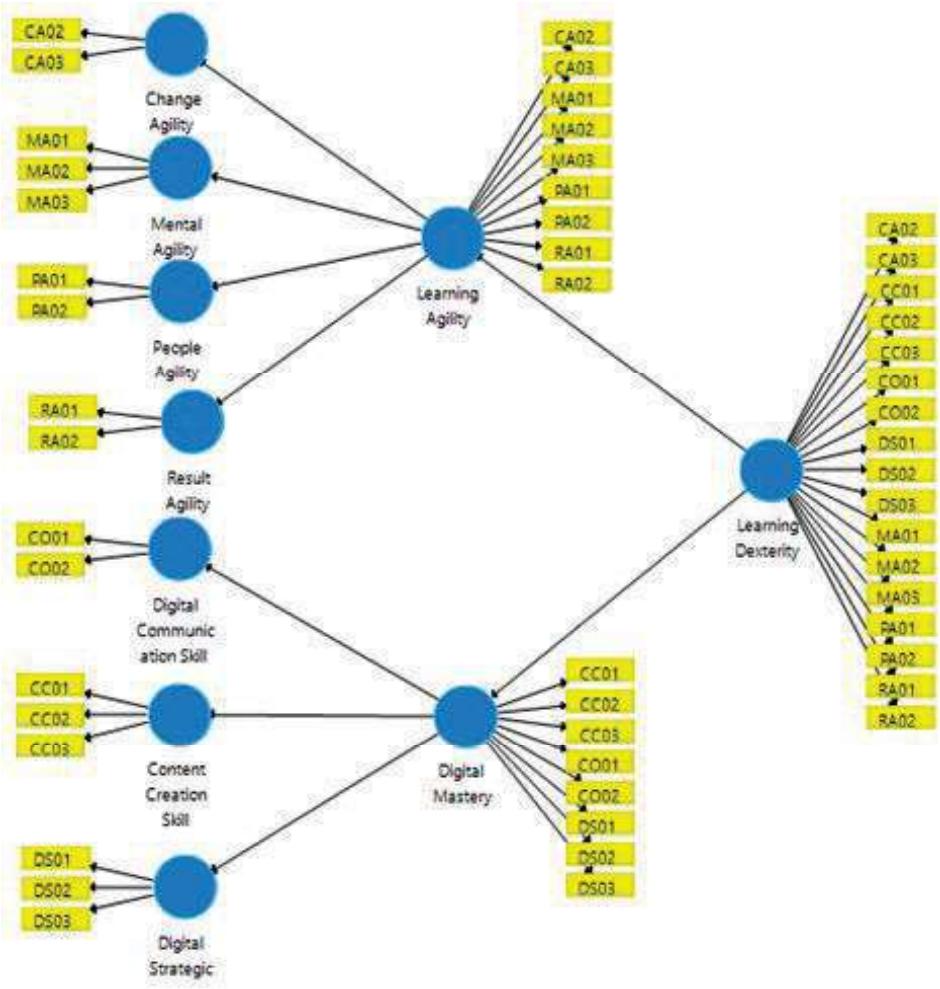

Figure 2: Third-Order Construct

Table 2: Validity & Reliability Analysis of Third Order Construct

Variable / Dimension	Reliability			Validity	
	CA	CR	Conclusion	AVE	Conclusion
Change Agility	0,68	0,86	Reliable	0,76	Valid
Content Creation Skill	0,79	0,88	Reliable	0,70	Valid
Digital Communication Skill	0,64	0,85	Reliable	0,74	Valid
Digital Strategic Skill	0,71	0,84	Reliable	0,64	Valid
Mental Agility	0,72	0,84	Reliable	0,64	Valid
People Agility	0,69	0,86	Reliable	0,76	Valid
Result Agility	0,53	0,81	Reliable	0,67	Valid

CA = Cronbach's Alpha; CR = Composite Reliability; AVE = Average Variance Extracted

Path Coefficients of Third-Order Construct: All path coefficients are listed in Table 3. Path coefficient of learning dexterity to digital mastery is 0.73 with *p*-value (0.00) is less than 0.05 and T-statistics (24.73) is more than 1.98. It means that learning dexterity is reflected to digital mastery positively and significantly. Path coefficient of learning dexterity to learning agility is 0.89 with *p*-value (0.00) is less than 0.05 and T-statistics (73.98) is more than 1.98. It means that learning dexterity is reflected to learning agility positively and significantly. Based on Table 3, digital mastery is reflected positively and significantly into content creation skill (0.78); digital communication skill (0.73) and digital strategic skill (0.70). It is similar to digital mastery, learning agility is reflected positively and significantly into change agility (0.79); mental agility (0.85); people agility (0.81); and result agility (0.77)

Table 3: Path Coefficient of Third Order

Path	Coefficient	T Statistics	*p*-Values
Digital Mastery -> Content Creation Skill	0.78	26.58	0.00
Digital Mastery -> Digital Communication Skill	0.73	28.98	0.00
Digital Mastery -> Digital Strategic Skill	0.70	19.26	0.00
Learning Agility -> Change Agility	0.79	36.90	0.00
Learning Agility -> Mental Agility	0.85	56,05	0.00
Learning Agility -> People Agility	0.81	45.38	0.00
Learning Agility -> Result Agility	0.77	36.54	0.00
Learning Dexterity -> Digital Mastery	0.73	24.73	0.00
Learning Dexterity -> Learning Agility	0.89	73.98	0.00

CONCLUSIONS

Learning dexterity is a modified construct which combines concept of learning agility and digital mastery. The aim of modification is to accommodate aspects of the digital technology utilization, beside the utilization of psycho-social aspects in adapting to the changes. This modification produces a techno-psycho-social construct.

Learning dexterity has been empirically tested on managerial resources of the palm oil plantation companies in Indonesia. The results explain that learning dexterity is positively and significantly reflected into digital mastery and learning agility dimension. The digital mastery dimension can be positively and significantly reflected on content creation, digital communication, and digital strategic skills sub-dimension. While the learning agility dimension can be positively and significantly reflected into change agility, mental agility, people agility, and result agility sub-dimension.

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